

REMARKS

In the previous Office Actions, the Examiner has rejected the claims based on the patent to Iida, et al. Iida, et al., is primarily directed to a means for speeding up the pulling of a silicon single crystal in a crystal pulling apparatus so that there is a region within the crystal which is defect free. Iida et al., does this primarily through use of an upper heat insulator and the jetting of a cooling gas. Such is substantially different from that of the subject invention where instead of controlling the pulling rate of the crystal, actively controls the temperature of the edge regions and the central regions, an approach not taken by Iida, et al.

The present invention fundamentally differs from Iida in that a silicon wafer having growth defects (void defects) is used as a wafer for semiconductor production. The present invention is based on the concept that "a wafer having growth defects (void defects) can be a wafer for semiconductor production purpose."

As shown in Figs. 3(A)-3(F) of the subject application, there are wafers that are inappropriate for semiconductor production even though growth defects are contained in those wafers. For this reason, the inventors carried out various experiments and found suitable conditions for producing acceptable wafers yet still having growth defects. These conditions are set forth in the claim.

On the other hand, the production target (a wafer for semiconductor production) of Iida is a wafer without defects, but not a wafer having growth defects. The Examiner has pointed out Fig. 10 of Iida as teaching a wafer having growth defects. Fig. 10 of Iida is a drawing that simply shows the general relationship between a crystal pulling speed and a distribution of defect regions. In the first place, Iida does not suggest that "a wafer having growth defects (void defects) can be a wafer for semiconductor production." Thus, it cannot be said that Fig. 10 shows the wafer for semiconductor production of the present invention, i.e., the wafer having growth defects.

The attached Fig. A shows the range of $G1_{edge}$ and $G1_{center}$ set forth in the claim of the present invention and the range of $G1_{edge}$ (G_e) and $G1_{center}$ (G_c) described in Iida. The zone sandwiched by the short dash lines 1 and 2 is the claimed range of the present invention, and the zone below the solid line 3 is the claimed range of Iida. In the Fig. A, even though the both

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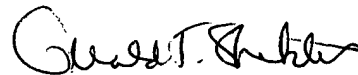
ranges partially overlap, these ranges basically differ from each other. Because the production target of the present invention differs from that of Iida, various production conditions are different. Therefore, even though the present invention is performed by applying the numerals within the overlapped portion of the range, it differs from Iida.

As stated above, the present invention differs from Iida in the production target, the range of $G1_{edge}$ and $G1_{center}$, the control parameters ($G1_{edge}/G1_{center}$). Iida neither describes nor suggests the production target, the range of $G1_{edge}$ and $G1_{center}$, and the control parameters of the present invention. Therefore, the Iida reference is not appropriate as a reference for rejecting the present invention.

Applicant hereby requests reconsideration and re-examination thereof.

With the above amendments and the remarks, this application is considered ready for allowance, and Applicants earnestly solicit an early notice of same. If the Examiner believes that a telephone conference would expedite prosecution of the subject application, he is respectfully requested to call the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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